

# Opportunities for BTES in existing buildings – project GEO4CIVHIC

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(more info on the project partners and contacts at <https://geo4civhic.eu/> )



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## The reasoning behind GEO4CIVHIC:

- A major obstacle to decarbonisation in the building sector is the comparably low share of new construction;  
→ without more RES in refurbishment, the decarbonisation of the building stock will simply take too long.
- Shallow geothermal technologies like UTES have contributed substantially to decarbonisation in new construction, but for a wider deployment of UTES in existing buildings, technologies need to be developed further and innovative ideas must be tested and brought to the market.

## The set of solutions GEO4CIVHIC is working on:

- Minimally invasive drilling and installation methods in narrow spaces.
- Optimized borehole heat exchangers (BHE), incl. very shallow BHE.
- Heat pumps suitable to work with conventional heating/cooling outlets.
- Dual-source heat pumps (ground and air) to reduce the required BHE length.
- Tools for site-related assessment of geothermal feasibility in refurbishment projects, decision and design support.

Light drill rig in a city



Prototype of a Dual-source-heat pump



## The methods and tools GEO4CIVHIC is using:

- 2 Test fields for drilling technology, at Alsfeld (D) and Molinella (IT).
- 3 Pilot sites to test newly developed components in Padova (IT), Bilbao (SP) and Valencia (SP).
- 4 Demonstration sites for newly developed systems in Ferrara (IT) and La Valetta (MT), both historical buildings, and in Greystones (IE) and Battel (BE).
- 12 further “virtual demonstration sites” designing solutions for existing buildings.
- In addition, a Decision Support System is under development to help in assessing if a geothermal system can be installed on a certain site and for a certain building.



Rig with Vibro-Drill at Alsfeld test field



Demo site Greystones

Demo site Ferrara



Demo site La Valetta



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